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<b>(21) International Application Number:</b> PCT/US98/09135 <b>(22) International Filing Date:</b> 5 May 1998 (05.05.98)  <b>(30) Priority Data:</b> 08/851,433 5 May 1997 (05.05.97) US  <b>(71) Applicant:</b> THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US).  <b>(72) Inventors:</b> KAISER, Carl-Eric; 5095 Lord Alfred Court, Cincinnati, OH 45241 (US). TREMBLAY, Charles, Ray- mond; 5255 Hidden Creek Circle, Mason, OH 45040 (US).  <b>(74) Agents:</b> REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217 (US).		<b>(81) Designated States:</b> BR, MX, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> PERSONAL CARE COMPOSITIONS CONTAINING AN ODOR MASKING BASE  <b>(57) Abstract</b>  Disclosed are personal care compositions comprising (a) from about 0.1 % to about 99.85 % by weight of a malodor-producing liquid carrier, malodor-producing polymer, or combination thereof, and (b) from about 0.005 % to about 2.5 % by weight of an odor masking base. The base comprises from about 15 % to about 75 % by weight of the base of an ionone perfume having a boiling point of more than about 250 °C, from about 5 % to about 65 % by weight of the base of a musk having a boiling point of more than about 250 °C, and from about 20 % to about 80 % by weight of the base of a highly volatile perfume having a boiling point of less than about 250 °C. The odor masking base of the composition helps to mask the malodor of the malodor-producing polymer and/or malodor-producing liquid carrier.		

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**PERSONAL CARE COMPOSITIONS CONTAINING  
AN ODOR MASKING BASE**

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**FIELD OF THE INVENTION**

The present invention relates to personal care compositions which contain a select combination of perfume materials which help to mask malodors associated with the use of malodor-producing polymers and/or malodor-producing liquid carriers in the compositions.

**BACKGROUND OF THE INVENTION**

Personal care products are commercially available in a variety of forms including antiperspirants, deodorants, hand and body lotions, shampoos, liquid and bar soaps, body washes, disposable diapers, and the like. Most of these products contain perfumes which help provide a pleasant fragrance during or after application of the product, or which otherwise help to hide or mask malodors associated with the use of such products.

Many personal care products are never commercialized because it is often too difficult to sufficiently hide or mask malodors associated with the use of such products. Especially problematic are malodors associated with the use of personal care products containing styling polymers, volatile liquid carriers, or combinations thereof. These malodors are even more problematic and difficult to hide or mask with most perfumes when higher concentrations of such malodor-producing polymers and/or malodor-producing liquid carriers are used in the personal care product. These higher concentrations are often necessary to provide improved product benefits such as skin and hair softness, hairstyle, mildness, increased deposition of active ingredients, fragrance longevity, and so forth.

Polymer or liquid carrier malodors, especially those in personal care products, can be made less offensive by using even higher concentrations of perfumes. Although the addition of such higher concentrations of perfumes can alter or reduce the overall offensive character of the polymer or liquid carrier malodors, it often results in an undesirably overbearing perfume odor that is especially offensive when associated with a personal care product. Even when the higher perfume concentrations adequately modify, hide or otherwise mask the polymer or liquid carrier malodors, these higher concentrations do not necessarily result in improved

perfume substantivity or longevity, thus resulting in the recurrence of liquid carrier or polymer malodors after the higher perfume concentrations have initially volatilized and no longer have an impact on malodors.

5 It has now been found that a select combination of perfume materials as defined herein can be incorporated into personal care compositions to effectively reduce the intensity of or mask the malodors associated with the use of malodor-producing polymers, malodor-producing liquid carriers or combinations thereof. This select combination of perfume chemicals comprises a highly volatile perfume, an ionone, and musk.

10 It is therefore an object of the present invention to provide an odor masking material suitable for use in personal care or other compositions containing malodor-producing liquid carriers and/or malodor-producing styling polymers, wherein the odor masking material effectively reduces or masks the malodor associated with the use of such compositions. It is a further object of the present invention to provide  
15 such an odor masking material which contains a select combination of a highly volatile perfume, an ionone, and musk.

#### SUMMARY OF THE INVENTION

The present invention is directed to personal care compositions which  
20 comprise (a) from about 0.1% to about 99.85% by weight of a malodor-producing liquid carrier, malodor-producing polymer, or combination thereof, and (b) from about 0.005% to about 2.5% by weight of an odor masking base. The odor masking base comprises (by weight of the base) from about 15% to about 75% by weight of  
25 an ionone perfume having a boiling point of more than about 250°C, from about 5% to about 65% by weight of a musk having a boiling point of more than about 250°C, and from about 20% to about 80% by weight of a highly volatile perfume having a boiling point of less than about 250°C.

It has been found that the select combination of perfume chemicals in the odor masking base effectively helps to mask malodors associated with personal care  
30 compositions containing malodor-producing polymers and/or malodor-producing liquid carriers.

#### DETAILED DESCRIPTION OF THE INVENTION

The personal care compositions of the present invention comprise a  
35 malodorous liquid carrier and/or malodorous polymer and an odor masking base to mask or reduce the malodor associated with the use of such malodorous liquid

carriers and/or malodorous polymers. The odor masking base is a select combination of ionone perfume, musk, and a highly volatile perfume.

The term "malodor" as used herein refers to any detectable odor associated with a volatile liquid carrier and/or a personal care polymer as recognized by people with normal olfactory acuity.

The term "odor masking base" as used herein refers to a select combination of perfume materials defined herein which are capable of masking or reducing both the odor and scent of malodorous liquid carriers and/or malodorous polymers formulated in personal care compositions.

The term "malodor-producing liquid carrier" as used herein refers to the smell, scent, odor, aroma, or fragrance of the volatile liquid carriers as defined herein.

The term "malodor-producing polymer" as used herein refers to the smell, scent, odor, aroma, or fragrance of the personal care polymers as defined herein.

The term "soluble" as used herein refers to any material that is sufficiently soluble in the liquid carrier of the personal care composition herein to form a substantially clear solution to the naked eye at a concentration of about 0.2%, preferably at about 0.5%, even more preferably at about 1.0%, by weight of the material in the liquid carrier at 25°C.

The term "insoluble" as used herein refers to any material that is not sufficiently soluble in the liquid carrier of the personal care composition herein to form a substantially clear solution to the naked eye at a concentration of about 0.2%, preferably at about 0.1%, by weight of the insoluble material at 25°C.

The personal care compositions of the present invention can comprise, consist of, or consist essentially of the elements and limitations of the invention described herein, as well as any of the additional or optional ingredients, components, or limitations described herein.

All percentages, parts and ratios are by weight of the total composition, unless otherwise specified. All such weights as they pertain to listed ingredients are based on the specific ingredient level and, therefore, do not include carriers or by-products that may be included in commercially available materials, unless otherwise specified.

### **Polymer**

The personal care composition of the present invention may comprise a malodor-producing polymer, preferably a malodor-producing hair styling polymer, which is otherwise suitable for application to human hair or skin. Concentrations of the malodor-producing polymer range from about 0.1% to about 99.85%, preferably from about 0.5% to about 75%, more preferably from about 0.5% to about 50%, and

even more preferably from about 1% to about 25% , by weight of the personal care composition.

Malodor-producing polymers suitable for use in the personal care composition of the present invention include gums and resins which are primarily  
5 derived from natural sources; crosslinked nonionic polyacrylate polymers and crosslinked cationic polyacrylate polymers such as homopolymers, copolymers, terpolymers of quaternary ammonium or cationic amine-substituted monomer units; polysaccharide polymers such as those derived from cellulose and starch; protein polymers; carboxylic acid polymers such as crosslinked acrylic acid homopolymers or  
10 copolymers; substituted or unsubstituted, linear or branched polyacrylamide polymers; copolymers of alkyl vinyl ethers and maleic anhydride; polyvinyl (N-pyrrolidones); silicone polymer materials (excluding the volatile silicone derivatives useful as a malodor-producing liquid carrier described hereinbelow) such as polydimethylsiloxane gums, silicone elastomers, siloxane gums, resin reinforced  
15 siloxanes, and crosslinked siloxane polymers; silicone copolymers useful as hair styling polymers; and mixtures thereof.

Nonlimiting examples of malodor-producing polymers suitable for use in the composition are disclosed in the *CTFA Cosmetic Ingredient Dictionary*, 3rd edition, edited by Estrin, Crosley, and Haynes (The Cosmetic, Toiletry, and Fragrance  
20 Association, Inc., Washington, D.C. (1982)); EP 228,868, to Farrar et al., published July 15, 1987; EP 412,704, published February 7, 1991; EP 412,707, published February 13, 1991; U.S. Serial No. 07/758,319, Bolich et al., filed August 27, 1991; U.S. Serial No. 07/758,320, Torgerson et al., filed August 27, 1991; U.S. Patent 4,061,602, to Oberstar et al., issued Dec. 6, 1977; U.S. Patent 4,196,190, to Gehman  
25 et al., issued April 1, 1980; U.S. Patent 4,221,688, to Johnson et al., issued September 9, 1980; U.S. Patent 4,234,464, to Morshauser, issued November 18, 1980; U.S. Patent 4,272,511, to Papantoniou et al., issued June 9, 1981; U.S. Patent 4,472,297, to Bolich et al., issued September 18, 1984; U.S. Patent 4,491,539, to Hoskins et al., issued January 1, 1985; U.S. Patent 4,509,949, to Huang et al., issued  
30 April 5, 1985; U.S. Patent 4,540,507, to Grollier, issued September 10, 1985; U.S. Patent 4,599,379, to Flesher et al., issued July 8, 1986; U.S. Patent 4,628,078, to Glover et al., issued December 9, 1986; U.S. Patent. 4,673,525, to Small et al., issued June 16, 1987; U.S. Patent 4,693,935, to Mazurek, issued September 15, 1987; U.S. Patent 4,728,571, to Clemens et al., issued March 1, 1988; U.S. Patent  
35 4,835,206, to Farrar et al., issued May 30, 1989; U.S. Patent 4,849,484, to Heard, issued July 18, 1989; U.S. Patent 4,902,499, to Bolich et al., issued February 20, 1990; U.S. Patent 4,906,459, to Bolich et al., issued March 6, 1990; U.S. Patent

5,073,614, to Shih et al., issued December 17, 1991; U.S. Patent 5,087,445, to Haffey et al., issued February 11, 1992; U.S. Patent 5,100,660, to Hawe et al., issued March 31, 1992; U.S. Patent 5,104,642 to Wells et al., issued April 14, 1992; U.S. Patent 5,104,646, to Bolich et al., issued April 14, 1992; U.S. Patent 5,106,609, to  
5 Bolich et al., issued April 21, 1992; U.S. Patent 5,120,531, to Wells et al., issued June 9, 1992; U.S. Patent 5,120,532, to Wells et al., issued June 9, 1992; U.S. Patent 5,139,770, to Shih et al., issued August 18, 1992; and U.S. Patent 5,494,533, to Woodin Jr. et al., issued February 27, 1996, which descriptions are incorporated herein by reference.

10 Preferred malodor-producing polymers are those film forming polymers especially suited for use in hair styling compositions such as hair sprays, styling shampoos, styling mousses, and the like, and which have a noticeable malodor when not used in combination with the odor masking base described hereinafter. Most preferred are hair styling polymers selected from the group consisting of copolymers  
15 of 1-vinyl-2-pyrrolidone and 1-vinyl-3-methylimidazolium salt (e.g., chloride salt) (referred to in the industry as Polyquaternium-16), such as those commercially available from BASF Wyandotte Corp. (Parsippany, NJ, USA) under LUVIQUAT tradename (e.g., LUVIQUAT FC 370 and LUVIQUAT FC 550); *t*-butyl acrylate/2-ethylhexyl acrylate copolymers having a weight/weight ratio of monomers  
20 of about 95/5, about 90/10, about 80/20, about 70/30, about 60/40, and about 50/50; *t*-butyl acrylate/2-ethylhexyl methacrylate copolymers having a weight/weight ratio of monomers of about 95/5, about 90/10, about 80/20, about 70/30, about 60/40, and about 50/50; *t*-butyl methacrylate/2-ethylhexyl acrylate copolymers having a weight/weight ratio of monomers of about 95/5, about 90/10, about 80/20, about  
25 70/30, about 60/40, and about 50/50; *t*-butyl methacrylate/2-ethylhexyl methacrylate copolymers having a weight/weight ratio of monomers of about 95/5, about 90/10, about 80/20, about 70/30, about 60/40, and about 50/50; *t*-butyl ethacrylate/2-ethylhexyl methacrylate copolymers having a weight/weight ratio of monomers of about 95/5, about 90/10, about 80/20, about 70/30, about 60/40, and about 50/50;  
30 vinyl pyrrolidone/vinyl acetate copolymers having a weight/weight ratio of monomers of about 10/90, and about 5/95; and mixtures thereof.

#### Liquid Carrier

The personal care composition of the present invention may comprise a malodor-producing liquid carrier suitable for application to human hair or skin, and  
35 which is preferably suitable for dissolving or dispersing film forming polymers in a hair styling composition, especially when the film forming polymer is a malodor-producing polymer as described hereinbefore. The liquid carrier is included in the

personal care composition at concentrations of from about 0.10% to about 99.85%, preferably from about 0.5% to about 75%, more preferably from about 1% to about 50%, even more preferably from about 1% to about 25%, by weight of the composition.

5       The personal care composition preferably comprises a combination of a liquid carrier and a film forming polymer, wherein the combination is associated with a malodor when used in a personal care composition. The malodor associated with such a combination may or may not be easily attributable solely to the liquid carrier or the film forming polymer, but rather may be most easily attributable to the  
10       combination.

      The liquid carrier for use in the personal care composition of the present invention is preferably a malodor-producing liquid carrier, typically a volatile organic solvent which produces malodors when used in personal care applications. In this context, the term "volatile" refers to liquid carriers that have a boiling point of less  
15       than about 300°C, preferably less than about 260°C, more preferably less than about 200°C (under 1 atmosphere of pressure).

      Suitable volatile organic solvents include many liquid carriers which are well known in the chemical arts, for example hydrocarbons, ethers, esters, amines, alkyl alcohols, volatile silicones derivatives, and combinations thereof. Nonlimiting  
20       examples of volatile organic solvents for use in the personal care composition of the present invention include linear or branched, saturated or unsaturated hydrocarbon solvents having from about 8 to about 18 carbon atoms; di(C<sub>5</sub>-C<sub>7</sub>) alkyl ethers and diethers such as isoamyl ether, dipentyl ether, and dihexyl ether; C<sub>5</sub>-C<sub>12</sub> alkyl esters such as ethyl butyrate, diethyl malonate, diethyl phthalate, diethyl succinate, dimethyl  
25       succinate, isopropyl butyrate; C<sub>1</sub>-C<sub>4</sub> alcohols such as ethanol, butyl alcohol, amyl alcohol, benzyl alcohol, phenyl propanol, and isopropanol; and volatile silicone derivatives such as cyclic or linear polydialkylsiloxane, linear siloxy compounds, or silane compounds.

#### Odor Masking Base

30       The personal care compositions of the present invention comprise an odor masking base which comprises a select combination of a highly volatile perfume, ionone perfume, and musk. Concentrations of the odor masking base preferably range from about 0.005% to about 3%, more preferably from about 0.006% to about 2.5%, even more preferably from about 0.0075% to about 1%, by weight of the  
35       personal care composition.

      The ionones, musks and highly volatile perfumes of the odor masking base are characterized in part by their respective boiling point ranges. The ionone



perfumes and musks must have a boiling point under 1 atmosphere of pressure of more than about 250°C, whereas the highly volatile perfumes must have a boiling point under 1 atmosphere of pressure of less than about 250°C.

The boiling point of many perfume materials are disclosed in, e.g., "Perfume and Flavor Chemicals (Aroma Chemicals)," S. Arctander, published by the author, 1969, incorporated herein by reference. Other boiling point values can be obtained from different chemistry handbooks and databases, such as the Beilstein Handbook, Lange's Handbook of Chemistry, and the CRC Handbook of Chemistry and Physics. When a boiling point is given only at a different pressure, usually lower pressure than the normal pressure of one atmosphere, the boiling point at normal or ambient pressure can be approximately estimated by using boiling point-pressure nomographs, such as those given in "The Chemist's Companion," A. J. Gordon and R. A. Ford, John Wiley & Sons Publishers, 1972, pp. 30-36. When applicable, the boiling point values can also be calculated by computer programs, based on molecular structural data, such as those described in "Computer-Assisted Prediction of Normal Boiling Points of Pyrans and Pyrroles," D. T. Stanton et al, J. Chem. Inf. Comput. Sci., 32 (1992), pp. 306-316, "Computer-Assisted Prediction of Normal Boiling Points of Furans, Tetrahydrofurans, and Thiophenes," D. T. Stanton et al, J. Chem. Inf. Comput. Sci., 31 (1992), pp. 301-310, and references cited therein, and "Predicting Physical Properties from Molecular Structure," R. Murugan et al, Chemtech, June 1994, pp. 17-23. All the above publications are incorporated herein by reference.

Each of the ionone perfumes, highly volatile perfumes, and musk components of the odor masking base are described in detail hereinafter. The present invention is also be directed to the odor masking base, whether or not it is incorporated into the personal care composition described herein. Such an odor masking base comprises each of the ionone perfumes, highly volatile perfumes, and musk components as described herein. Such an embodiment can be used as an odor masking base or perfume in a variety of applications, including as an odor masking base associated with products or compositions other than personal care compositions.

#### Highly Volatile Perfume

The highly volatile perfume of the odor masking base comprises perfume materials which compete with the malodorous liquid carrier and/or malodorous polymer molecules to bind to the nasal receptor sites. These highly volatile perfumes are the first odors recognized and identified by the brain, and help inhibit or mask the olfactory recognition of the malodorous liquid carrier and/or malodorous polymer. Concentrations of the highly volatile perfume range from about 15% to about 85%,

preferably from about 20% to about 80%, more preferably from about 35% to about 75%, even more preferably from about 45% to about 65%, by weight of the odor masking base.

5 The highly volatile perfumes are more volatile than the ionone and musk components of the odor masking base, and have a boiling point of less than about 250°C, preferably less than about 230°C, more preferably less than about 220°C under 1 atmosphere of pressure. These highly volatile perfumes are classified as either aldehydes having from about 2 to about 15 carbon atoms, esters having from about 3 to about 15 carbon atoms, alcohols having from about 4 to about 12 carbon atoms, ethers having from about 4 to about 13 carbon atoms, ketones having from about 3 to about 12 carbon atoms, or combinations thereof.

Nonlimiting examples of suitable aldehydes include n-decyl aldehyde, 10-undecen-1-al, dodecanal, 3,7-dimethyl-7-hydroxyoctan-1-al, 2,4-dimethyl-3-cyclohexene carboxaldehyde, benzaldehyde, anisic aldehyde, and mixtures thereof.

15 Nonlimiting examples of suitable esters include ethyl acetate, cis-3-hexenyl acetate, 2,6-dimethyl-2,6-octadien-8-yl acetate, benzyl acetate, 1,1-dimethyl-2-phenyl acetate, 2-pentyloxy allyl ester, allyl hexanoate, methyl-2-aminobenzoate, and mixtures thereof.

Nonlimiting examples of suitable alcohols include n-octyl alcohol, beta-gamma-hexenol, 2-trans-6-cis-nonadien-1-ol, 3,7-dimethyl-trans-2,6-octadien-1-ol, 3,7-dimethyl-6-octen-1-ol, 3,7-dimethyl-1,6-octadien-3-ol, 2,6-dimethyl-7-octen-2-ol, 2-phenylethyl alcohol, 2-cis-3,7-dimethyl-2,6-octadien-1-ol, 1-methyl-4-isopropyl-1-cyclohexen-8-ol, and mixtures thereof.

Nonlimiting examples of suitable ethers include amyl cresol oxide, 4-ethoxy-1-methyl-benzol, 4-methoxy-1-methyl benzene, methyl phenylethyl ether, and mixtures thereof.

Nonlimiting examples of suitable ketones include dimethyl acetophenone, ethyl-n-amyl ketone, 2-heptanone, 2-octanone, 3-methyl-2-(cis-2-penten-1-yl)-2-cyclopenten-1-one, 1-1-methyl-4-iso-propenyl-6-cyclohexen-2-one, para-tertiary-amyl cyclohexanone, and mixtures thereof.

Preferred highly volatile perfumes include 2-pentyloxy allyl ester sold under the tradename Allyl Amyl Glycolate (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.); benzaldehyde sold under the tradename Amandol (available from Rhone-Poulenc, Inc located in Princeton, New Jersey, U.S.A.); cis-3-hexenyl acetate sold under the tradename Verdural extra (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.); 2,6-dimethyl-7-octen-2-ol sold under the tradename Dihydromyrcenol

- (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.); para-tertiary-amyl cyclohexanone sold under the tradename Orivone (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.); n-decyl aldehyde sold under the tradename Decyl Aldehyde (available from Aceto, Corp. located in Lake Success, NY, U.S.A.); and mixtures thereof.

Nonlimiting examples of suitable highly volatile perfumes and their respective boiling point values under 1 atmosphere of pressure include the following:

	<u>Perfume Material</u>	<u>Boiling Point (°C)</u>
10	3,7-dimethyl-1,6-octadien-3-ol	198
	3,7-dimethyl-7-hydroxyoctan-1-al	241
	n-decyl aldehyde	215
	benzaldehyde	179
	anisic aldehyde	248
15	benzyl acetate	215
	allyl hexanoate	185
	cis-3-hexenyl acetate	87
	methyl-2-aminobenzoate	237
	2-pentyloxy allyl ester	Flash Point >100
20	2-cis-3,7-dimethyl-2,6-octadien-1-ol	227
	3,7-dimethyl-trans-2,6-octadien-1-ol	230
	3,7-dimethyl-6-octen-1-ol	225
	2,6-dimethyl-7-octen-2-ol	208
	2-phenylethyl alcohol	220
25	1-methyl-4-iso-propyl-1-cyclohexen-8-ol	219
	1-1-methyl-4-iso-propenyl-6-cyclohexen-2-one	231
	para-tertiary-amyl cyclohexanone	211

#### Ionone Perfume

- The odor masking base comprises an ionone perfume at concentrations ranging from about 15% to about 80%, preferably from about 16% to about 60%, more preferably from about 16% to about 40%, by weight of the odor masking base. These ionone perfumes are a well known class of perfumes chemicals derived from natural oils or manufactured synthetically, which are typically colorless or pale yellow liquids exhibiting woody violet-like odors.

- The ionone perfume for use in the odor masking base must have a boiling point under 1 atmosphere of pressure of more than about 250°C, preferably more than about 255°C, even more preferably more than about 260°C, wherein the ionone perfume is preferably selected from methyl ionones, alpha ionones, beta ionones, gamma ionones, or combinations thereof.

- Nonlimiting examples of suitable ionones include 1-(2,6,6-Trimethyl-2-cyclohexene-1-yl)-1,6-heptadien-3-one, 2-Allyl-para-menthene-(4(8))-ono-3,

Pseudo-allyl-alpha-ionone, alpha-Citrylidene cyclopentanone, 5-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-4-methyl-4-penten-3-one, 6-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1-methyl-5-hexen-4-one, 2,6,6-Trimethyl cyclohexyl-1-butenone-3, Dihydro-alpha-ionone, 4-(2,6,6-Trimethylcyclohexen-1-yl)-butan-2-one, 4-(2-Methylene-6,6-dimethylcyclohexyl)-butan-2-one, 1-(2,5,6,6-Tetramethyl-2-cyclohexenyl)-butan-3-one, Dihydro-beta-ionone, Dihydro-gamma-ionone, 5-(2,6,6-Trimethyl-2-cyclohexenyl)-pentan-3-one, Dihydro-iso-methyl-beta-ionone, 6-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-5-hexen-4-one, alpha-Ethyl-2,2,6-trimethyl cyclohexane butyric aldehyde, 4-Methyl-6-(1,1,3-trimethyl-2'-cyclohexen-2'-yl)-3,5-hexadien-2-one, 6,10-Dimethyl undecan-2-one, 6-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-1-methyl-2,5-hexadien-4-one, 6-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-1-methyl-2,5-hexadien-4-one, 4-(2,2,6-Trimethyl-2-cyclohexen-1-yl)-3-buten-2-one, 4-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-3-buten-2-one, 4-(2-Methylene-6,6-dimethylcyclohexyl)-3-buten-2-one, Epoxy-2,3-beta-ionone, Ethyl-2,3-epoxy-3-methyl-5-(2,6,6-trimethyl-2-cyclohexenyl)-4-pentenoate, alpha-ionone methylanthranilate, Methyl-2,3-epoxy-3-methyl-5-(2,6,6-trimethyl-2-cyclohexenyl)-4-pentenoate, 4-(2,5,6,6-Tetramethyl-2-cyclohexen-1-yl)-3-buten-2-one, 6-Methyl-beta-ionone, 6-Methyl-gamma-ionone, 4-(2,6,6-Trimethyl-2-cyclohexenyl)-2,3-dimethyl-2-buten-1-al, 4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-3-methyl-3-buten-2-one, 5-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-4-penten-3-one, 5-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-4-penten-3-one, 4-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-3-methyl-3-buten-2-one, 5-(2-Methylene-6,6-dimethylcyclohexyl)-4-penten-3-one, 4-(2-Methylene-6,6-dimethylcyclohexyl)-3-methyl-3-buten-2-one, 4-(2,3,6,6-Tetramethyl-2-cyclohexen-1-yl)-3-buten-2-one, 4-(2,4,6,6-Tetramethyl-2-cyclohexen-1-yl)-3-buten-2-one, 4-(2,4,6,6-Tetramethyl-1-cyclohexen-1-yl)-3-buten-2-one, 5-Methyl-1-(3-methyl-3-cyclohexenyl)-1,3-hexanedione, 2-Methyl-4-(2,6,6-trimethyl-2-cyclohexenyl)-3-buten-1-al, 3-Methyl-4-(2,4,6-trimethyl-3-cyclohexenyl)-3-buten-2-one, 4-(2-Methyl-5-iso-propenyl-1-cyclopenten-1-yl)-2-butanone, 4-(2,6,6-Trimethyl-7-cycloheptenyl)-3-buten-2-one, 4-(2,6,6-Trimethyl-4-cyclohexenyl)-3-buten-2-one, 2,6-Dimethylundeca-2,6,8-trien-10-one, 2,6,12-Trimethyltrideca-2,6,8-trien-10-one, 2,6-Dimethyldodeca-2,6,8-trien-10-one, 2,6,9-Trimethylundeca-2,6,8-trien-10-one, 4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-3-methyl-3-buten-2-one, 4-(2,4,6-Trimethyl-3-cyclohexen-1-yl)-3-buten-2-one, 5-(2-Methylene-6,6-dimethylcyclohexyl)-4-penten-3-one, and mixtures thereof.

Preferred ionones include 4-(2,6,6-Trimethyl-3-cyclohexen-1-yl)-3-methyl-3-buten-2-one sold under the tradename Isoraldeine (available from Givaudan Roure, Corp. located in Teaneck, New Jersey, U.S.A.); 5-(2-Methylene-6,6-dimethylcyclohexyl)-4-penten-3-one sold under the tradename gamma-Methyl Ionone

(available from Givaudan Roure, Corp. located in Teaneck, New Jersey, U.S.A.); 4-(2,2,6-Trimethyl-2-cyclohexen-1-yl)-3-buten-2-one sold under the tradename alpha-Ionone (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.); 4-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-3-buten-2-one sold under the tradename beta-Ionone (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.); 4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-3-methyl-3-buten-2-one sold under the tradename Methyl Ionone (available from Bush Boake Allen, Inc. located in Montvale, New Jersey, U.S.A.); and mixtures thereof.

Ionones may be incorporated into the odor masking base as one or more individual perfume chemicals or as a specialty perfume containing a combination of perfume chemicals including ionone perfume chemicals. Nonlimiting examples of ionone specialty perfumes include Alvanone Extra available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A., Irisia Base available from Firmenich, Inc located in Princeton, New Jersey, U.S.A., Irival available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A., Iritone available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A., and mixtures thereof.

The musk and highly volatile perfumes for use in the odor masking base can also be incorporated into the base as one or more individual perfume chemicals, or as a specialty perfume containing a combination of perfume chemicals. A nonlimiting example of a preferred highly volatile specialty perfume include Cassis Base 345-B available from Firmenich, Inc located in Princeton, New Jersey, U.S.A..

Nonlimiting examples of suitable ionone perfumes and their respective boiling point values under 1 atmosphere of pressure include the following:

	<u>Perfume Material</u>	<u>Boiling Point (°C)</u>
	2,6-Dimethylundeca-2,6,8-trien-10-one	266
	Dihydro-alpha-ionone	257
	4-(2,6,6-Trimethylcyclohexen-1-yl)-	
30	butan-2-one	253
	4-(2,2,6-Trimethyl-2-cyclohexen-1-yl)-3-	
	buten-2-one	264
	4-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-3-	
	buten-2-one	266
35	4-(2,5,6,6-Tetramethyl-2-cyclohexen-1-yl)-	
	3-buten-2-one	286
	5-(2,6,6-Trimethyl-1-cyclohexen-1-yl)-	
	4-penten-3-one	270
	4-(2,6,6-Trimethyl-2-cyclohexen-1-yl)-	
40	3-methyl-3-buten-2-one	275
	4-(2,4,6-Trimethyl-3-cyclohexen-1-yl)-	

3-buten-2-one	276
5-(2-Methylene-6,6-dimethylcyclohexyl)- 4-penten-3-one	270

**Musk**

5 The odor masking base comprises a musk component at concentrations of from about 5% to about 70%, preferably from about 15% to about 50%, more preferably from about 20% to about 35%, by weight of the odor masking base. Musk is a well known class of perfumes chemicals that is typically in the form of a colorless or light yellow material having a distinctive, musk-like odor.

10 The musk component for use in the odor masking base must have a boiling point under 1 atmosphere of pressure of more than about 250°C, preferably more than about 255°C, even more preferably more than about 260°C, wherein the musk component is preferably a polycyclic musk, macrocyclic musk, nitrocyclic musk, or combination thereof, each preferred musk component having more than about 12  
15 carbon atoms, preferably more than about 13 carbon atoms, more preferably more than about 15 carbon atoms.

Suitable polycyclic musks include 5-Acetyl-1,1,2,3,3,6-hexamethylindan, 4-Acetyl-1,1-dimethyl-6-tertiary-butylindan, 7-Acetyl-1,1,3,4,4,6-hexamethyl-1,2,3,4-tetrahydronaphthalene, 1,1,4,4-Tetramethyl-6-ethyl-7-acetyl-1,2,3,4-  
20 tetrahydronaphthalene, 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl-cyclopenta-gamma-2-benzopyran, and mixtures thereof.

Suitable macrocyclic musks include cyclopentadecanolide, cyclopentadecanone, 3-Methyl-1-cyclopentadecanone, cycloheptadecen-9-one-1, cycloheptadecanone, cyclohexadecen-7-olide,  
25 cyclohexadecen-9-olide, cyclohexadecanolide, ethylene tridecane dioate, 10-oxahexadecanolide, 11-oxahexadecanolide, 12-oxahexadecanolide, and mixtures thereof.

Suitable nitrocyclic musks include 1,1,3,3,5-Pentamethyl-4,6-dinitroindan, 2,6-Dinitro-3-methoxy-1-methyl-4-tertiary-butylbenzene, 2,6-Dimethyl-3,5-dinitro-4-  
30 tertiary-butyl-acetophenone, 2,6-Dinitro-3,4,5-trimethyl-tertiary-butyl-benzene, 2,4,6-Triinitro-1,3-dimethyl-5-tertiary-butylbenzene, and mixtures thereof.

Preferred musks include 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl-cyclopenta-gamma-2-benzopyran sold under the tradename Galaxolide (available from International Flavors and Fragrances, Inc. located in New York, NY, U.S.A.);  
35 cyclopentadecanolide sold under the tradename Exaltolide (available from Firmenich, Inc. located in Princeton, New Jersey, U.S.A.); ethylene tridecane dioate sold under the tradename Ethylene Brassylate (available from Fragrance Resource, Inc. located in Keyport, New Jersey, U.S.A.); 7-Acetyl-1,1,3,4,4,6-hexamethyl-1,2,3,4-

tetrahydronaphthalene sold under the tradename Tonalid (available from Givaudan Roure, Corp. located in Teaneck, New Jersey, U.S.A.); and mixtures thereof.

Nonlimiting examples of suitable musks and their respective boiling point values under 1 atmosphere of pressure include the following:

5	<u>Perfume Material</u>	<u>Boiling Point (°C)</u>
	7-Acetyl-1,1,3,4,4,6-hexamethyl-1,2,3,4-tetrahydronaphthalene ethylene tridecane dioate	354
10	5-Acetyl-1,1,2,3,3,6-hexamethylindan 1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethyl-cyclopenta-gamma-2-benzopyran (50% IPM)	332 +300
	cyclohexadecen-7-olide	+250 300
	cyclopentadecanolide	280
15	cyclohexadecanolide	294
	2,6-Dinitro-3,4,5-trimethyl-tertiary-butyl-benzene	+250

#### Optional Components

The personal care compositions of the present invention may further comprise one or more optional components known or otherwise effective for use in personal care products, provided that the optional components are physically and chemically compatible with the essential components described herein, or do not otherwise unduly impair product stability, aesthetics or performance. Individual concentrations of such optional components may range from about 0.001% to about 40% by weight of the personal care compositions.

Nonlimiting examples of optional components for use in the personal care composition include water or other aqueous solubilizing agents, anti-dandruff agents, hair conditioning agents such as hydrocarbon oils, fatty esters, silicones (preferably silicone hair conditioning agents), dyes, pearlescent aids, foam boosters, additional surfactants or nonionic cosurfactants, pediculocides, pH adjusting agents, preservatives, proteins, skin active agents, sunscreens, vitamins, skin bleaching agents, skin treating agents, skin healing agents, and viscosity adjusting agents.

#### Optional Perfume Oil

The personal care compositions of the present invention may further comprise additional perfume chemicals or oils other than those described herein. These optional perfume chemicals or oils are used in addition to and in combination with the odor masking base, to provide the composition with the desired fragrance. Concentrations of the optional perfume chemicals or oils preferably range from about 0.05% to about 5%, more preferably from about 0.06% to about 4.75%, even more preferably from about 0.075% to about 3%, by weight of the composition.

Optional perfume chemicals or oils suitable for use in the personal care composition can be any perfume material, or a combination of perfume materials, other than those described hereinbefore and which provides the composition with the desired fragrance. These optional perfume chemicals or oils provide the composition with the desired fragrance, which is substantially unaffected by the malodor of the malodor-producing polymer and/or malodor-producing liquid carrier which is now reduced or masked by the odor masking base.

Preferably the optional perfume oils are used in combination with the odor masking base at a weight ratio of optional perfume oil to odor masking base of from about 50:50 to about 95:5, more preferably from about 55:45 to about 90:10, even more preferably from about 60:40 to about 85:15, most preferably from about 70:30 to about 80:20.

Nonlimiting examples of optional perfume chemicals or oils which are useful in the personal care composition herein are described in *Perfumery and Flavoring Synthetics*, 3rd Revised Edition, Paul Z. Bedoukian, 1986, *Perfume and Flavor Chemicals*, Volumes I and II, Steffen Arctander, 1969, which descriptions are incorporated herein by reference.

#### **Optional Humectants, Moisturizers, and Skin Conditioners**

The personal care compositions of the present invention may further comprise one or more humectant, moisturizing, or skin conditioning materials. A variety of these materials can be employed and each can be present at concentrations of from about 0.1% to about 20%, more preferably from about 1% to about 10%, and most preferably from about 2% to about 5%, by weight of the composition. These materials include guanidine; glycolic acid and glycolate salts (e.g. ammonium and quaternary alkyl ammonium); lactic acid and lactate salts (e.g. ammonium and quaternary alkyl ammonium); aloe vera in any of its variety of forms (e.g., aloe vera gel); polyhydroxy alcohols such as sorbitol, glycerol, hexanetriol, propylene glycol, butylene glycol, hexylene glycol and the like; polyethylene glycols; sugars and starches; sugar and starch derivatives (e.g., alkoxylated glucose); hyaluronic acid; lactamide monoethanolamine; acetamide monoethanolamine; and mixtures thereof. Also useful herein are the propoxylated glycerols described in U.S. Patent No. 4,976,953, to Orr et al., issued December 11, 1990, which is incorporated by reference herein in its entirety.

Also useful are various C1-C30 monoesters and polyesters of sugars and related materials. These esters are derived from a sugar or polyol moiety and one or more carboxylic acid moieties. Depending on the constituent acid and sugar, these esters can be in either liquid or solid form at room temperature. Examples of liquid



esters include: glucose tetraoleate, the glucose tetraesters of soybean oil fatty acids (unsaturated), the mannose tetraesters of mixed soybean oil fatty acids, the galactose tetraesters of oleic acid, the arabinose tetraesters of linoleic acid, xylose tetralinoleate, galactose pentaoleate, sorbitol tetraoleate, the sorbitol hexaesters of unsaturated soybean oil fatty acids, xylitol pentaoleate, sucrose tetraoleate, sucrose pentaoleate, sucrose hexaoleate, sucrose hepatoleate, sucrose octaoleate, and mixtures thereof. The ester materials are further described in, U.S. Patent No. 2,831,854, U.S. Patent No. 4,005,196, to Jandacek, issued January 25, 1977; U.S. Patent No. 4,005,195, to Jandacek, issued January 25, 1977; U.S. Patent No. 5,306,516, to Letton et al., issued April 26, 1994; U.S. Patent No. 5,306,515, to Letton et al., issued April 26, 1994; U.S. Patent No. 5,305,514, to Letton et al., issued April 26, 1994; U.S. Patent No. 4,797,300, to Jandacek et al., issued January 10, 1989; U.S. Patent No. 3,963,699, to Rizzi et al, issued June 15, 1976; U.S. Patent No. 4,518,772, to Volpenhein, issued May 21, 1985; and U.S. Patent No. 4,517,360, to Volpenhein, issued May 21, 1985; all of which are incorporated by reference herein in their entirety.

#### Method of Masking

The present invention is also directed to methods of masking or reducing the malodor of personal care or other compositions containing malodor-producing liquid carriers and/or malodor-producing polymers. Such methods comprise the steps of (a) preparing an odor masking base by combining the following components: (i) from about 20% to about 80% by weight of the base of a highly volatile perfume, (ii) from about 15% to about 75% by weight of the base of an ionone perfume, and (iii) from about 5% to about 65% by weight of the base of a musk component; and (b) mixing the odor masking base of step (a) with the malodor-producing polymer, malodor-producing liquid carrier, or combination thereof, wherein the composition comprises from about 0.005% to about 2.5% by weight of the odor masking base, and from about 0.1% to about 99.85% by weight of the malodor-producing polymer, malodor-producing liquid carrier, or combination thereof. The methods preferably comprise the preferred composition limitations described hereinbefore.

#### Examples

The following examples further describe and demonstrate embodiments within the scope of the present invention. The examples are given solely for the purpose of illustration and are not to be construed as limitations of the present invention, as many variations thereof are possible without departing from the spirit and scope of the invention. The exemplified embodiments of the personal care composition of the present invention provide masking or reduction of malodorous liquid carriers and/or

malodorous polymers contained in the composition. Ingredients are herein identified by chemical, trade, or CTFA name.

The personal care compositions illustrated in Examples IX-XXII are prepared by conventional formulation and mixing techniques, an example of which is set forth hereinbelow. All exemplified amounts are listed as weight percents and exclude minor materials such as diluents, filler, and so forth, unless otherwise specified.

In the perfume art, some materials having no odor or very faint odor are used as diluents or extenders. Non-limiting examples of these materials are dipropylene glycol, diethyl phthalate, triethyl citrate, isopropyl myristate, and benzyl benzoate. These materials are used for, e.g., diluting and stabilizing some other perfume materials. These materials are not counted in the formulation of the personal care compositions of the present invention.

#### Preparation

The personal care compositions of the present invention may be prepared by composing an odor masking base as described in Examples I-VIII. The odor masking base and a perfume oil are then mixed with other ingredients of the composition using conventional formulation and mixing techniques. Odor masking base compositions, as well as perfume blends of the odor masking base and perfume oil, are exemplified in the following examples. The perfume blends can be a combination of odor masking base/perfume oil which is combined with other ingredients of the personal care composition.

**Odor Masking Base**

	I	II	III	IV
Fragrance Material	WT%	WT%	WT%	WT%
Allyl Amyl Glycolate <sup>1</sup>	0.30	0.50	0.60	0.60
Benzaldehyde <sup>2</sup>	0.20	0.40	0.40	0.40
Cassis 345-B <sup>3</sup>	1.50	2.0	3.0	3.0
cis-3-Hexenyl acetate <sup>4</sup>	1.0	0.75	1.0	0.75
Dihydromercenol <sup>5</sup>	64.50	61.85	57.0	46.65
Orivone <sup>6</sup>	---	2.0	1.0	1.0
Irisia Base <sup>7</sup>	12.0	---	10.0	8.0
Alvanone Extra <sup>8</sup>	---	---	2.0	---
n-Decyl aldehyde <sup>9</sup>	0.50	0.50	0.50	0.60
Tonalid <sup>10</sup>	---	---	---	10.0
Galaxolide 50 DEP <sup>11</sup>	15.0	18.0	21.50	20.0
Methyl Ionone <sup>14</sup>	---	7.0	---	1.0
gamma-Methyl Ionone <sup>15</sup>	5.0	7.0	3.0	8.0

5

**Odor Masking Base**

	<b>V</b>	<b>VI</b>	<b>VII</b>	<b>VIII</b>
<b>Fragrance Material</b>	<b>WT%</b>	<b>WT%</b>	<b>WT%</b>	<b>WT%</b>
Allyl Amyl Glycolate <sup>1</sup>	0.75	0.40	2.0	2.0
Benzaldehyde <sup>2</sup>	0.60	0.40	1.0	1.5
Cassis 345-B <sup>3</sup>	3.0	2.50	3.0	3.0
cis-3-Hexenyl acetate <sup>4</sup>	1.0	0.75	2.0	1.5
Dihydromercenol <sup>5</sup>	58.65	61.25	36.0	11.0
Orivone <sup>6</sup>	2.0	1.0	---	---
Irisia Base <sup>7</sup>	5.0	10.0	5.0	5.0
Alvanone Extra <sup>8</sup>	2.0	1.0	---	---
n-Decyl aldehyde <sup>9</sup>	1.0	0.70	1.0	1.0
Tonalid <sup>10</sup>	5.0	---	---	5.0
Galaxolide 50 DEP <sup>11</sup>	15.0	20.0	20.0	20.0
alpha-Ionone <sup>12</sup>	---	---	10.0	20.0
beta-Ionone <sup>13</sup>	---	---	10.0	10.0
Methyl Ionone <sup>14</sup>	---	---	---	5.0
gamma-Methyl Ionone <sup>15</sup>	6.0	2.0	10.0	15.0

1 - available from International Flavors and Fragrances, Inc.

10 2 - available from Rhone-Poulenc, Inc. under the tradename Armandol

3 - speciality perfume material available from Firmenich, Inc.

4 - available from International Flavors and Fragrances, Inc. under the tradename Verdural extra

5 - available from International Flavors and Fragrances, Inc.

15 6 - available from International Flavors and Fragrances, Inc.

7 - speciality perfume material available from Firmenich, Inc.

8 - speciality perfume material available from International Flavor and Fragrances, Inc.

9 - available from Aceto, Corp.

20 10 - available from Givaudan Roure, Corp.

11 - available from International Flavors and Fragrances, Inc.

12 - available from International Flavors and Fragrances, Inc.

13 - available from International Flavors and Fragrances, Inc.

14 - available from International Flavors and Fragrances, Inc.

25 15 - available from International Flavors and Fragrances, Inc.

**Examples of Perfume Blends of Odor Masking Base and Perfume Oil**

	<b>Perfume Blend A</b>	<b>w/w ratio</b>
	Odor Masking Base:Example VIII	50
	Perfume Oil	50
5	<b>Perfume Blend B</b>	<b>w/w ratio</b>
	Odor Masking Base:Example VII	30
	Perfume Oil	70
10	<b>Perfume Blend C</b>	<b>w/w ratio</b>
	Odor Masking Base:Example III	20
	Perfume Oil	80
15	<b>Perfume Blend D</b>	<b>w/w ratio</b>
	Odor Masking Base:Example II	10
	Perfume Oil	90

20

**Styling Shampoo Compositions**

	<b>IX</b>	<b>X</b>	<b>XI</b>	<b>XII</b>	<b>XIII</b>
<b>Component</b>	<b>WT%</b>	<b>WT%</b>	<b>WT%</b>	<b>WT%</b>	<b>WT%</b>
Ammonium Laureth Sulfate	10.5	9.5	10.0	2.0	14.0
Ammonium Lauryl Sulfate	0.5	---	---	---	---
Lauroamphoacetate	7.0	---	---	---	---
Cocamidopropyl Betaine FB	---	4.3	4.0	6.0	2.7
Mixture A	4.0	---	---	---	---
Mixture B	---	8.0	---	---	---
Mixture C	---	---	12.0	---	---
Mixture D	---	---	---	3.0	6.0
Monosodium Phosphate	0.1	0.1	0.1	0.1	0.1
Disodium Phosphate	0.2	0.2	0.2	0.2	0.2
Glycol Distearate	2.0	2.0	2.0	2.0	2.0
Cocomonoethanol amide	0.6	0.6	0.6	0.6	0.6
Perfume Blend A	---	---	1.0	---	---
Perfume Blend B	---	1.0	---	---	---
Perfume Blend C	1.0	---	---	---	1.0
Perfume Blend D	---	---	---	1.0	---
Cetyl Alcohol	0.42	0.42	---	0.42	0.60
Stearyl Alcohol	0.18	0.18	0.18	0.18	---
PEG-150 Pentaerythrityl Tetrastearate	0.2	0.5	0.7	0.9	1.0
Polyquaternium 10 (JR30M)	---	0.3	0.5	0.15	---
Polyquaternium 10 (JR400)	0.3	---	---	---	0.5
Dimethicone	---	0.3	0.3	---	---

DMDM Hydantoin	0.2	0.2	0.2	0.2	0.2
Water	qs 100	qs 100	qs 100	qs 100	qs 100

**Mixture A.**

w/w ratio

Styling Polymer: t-butyl acrylate/2-ethylhexyl methacrylate (90/10 w/w) 40

Liquid carrier: isododecane

60

**Mixture B.**

w/w ratio

5 Styling Polymer: vinyl pyrrolidone/vinyl acetate (5/95 w/w) 50

Liquid carrier: amyl benzoate

50

**Mixture C.**

w/w ratio

Styling Polymer: vinyl pyrrolidone/vinyl acetate (5/95 w/w) 50

Liquid carrier: benzyl alcohol

50

10 **Mixture D.**

w/w ratio

Styling Polymer: vinyl pyrrolidone/vinyl acetate (5/95 w/w) 40

Liquid carrier: diethyl succinate

60

15

20

25

30

**Styling Shampoo Compositions**

	<u>IXV</u>	<u>XV</u>	<u>XVI</u>	<u>XVII</u>	<u>XVII</u> <u>I</u>
Component	WT%	WT%	WT%	WT%	WT%
Ammonium Laureth Sulfate	9.5	9.0	9.3	9.3	9.5
Ammonium Lauryl Sulfate	1.0	3.0	—	—	1.0
Lauroamphoacetate	7.5	6.0	—	—	7.5
Cocamidopropyl Betaine FB <sup>1</sup>	—	—	4.7	4.7	—
Polyquaternium-16 (Luviquat FC 370) <sup>2</sup>	2.0	3.0	3.0	1.5	2.5
Monosodium Phosphate	0.1	0.1	0.1	0.1	0.1
Disodium Phosphate	0.2	0.2	0.2	0.2	0.2
Glycol Distearate	2.0	2.0	2.0	2.0	2.0
Cocomonoethanol amide	0.6	0.6	0.6	0.6	0.6
Perfume Blend A	—	—	1.0	—	1.0
Perfume Blend B	—	1.0	—	—	—

Perfume Blend C	1.0	---	1.0	---	---
Perfume Blend D	---	---	---	1.0	---
Cetyl Alcohol	0.07	---	0.42	0.42	0.14
Stearyl Alcohol	0.03	---	0.18	0.18	0.06
PEG-150 Pentaerythrityl Tetrastearate	0.1	0.15	---	0.08	0.20
Polyquaternium 10 (JR30M) <sup>3</sup>	0.3	---	0.3	---	0.2
Polyquaternium 10 (JR400) <sup>3</sup>	---	---	---	0.4	---
Guar Hydroxypropyltrimonium Chloride (Jaguar C-17) <sup>4</sup>	---	0.3	---	---	---
Dimethicone	0.25	---	---	---	---
DMDM Hydantoin	0.2	0.2	0.2	0.2	0.2
Water	qs 100	qs 100	qs 100	qs 100	qs 100

(1) Available from Goldschmidt (Hopewell, Virginia, USA)

(2) Available from BASF (Ludwigshafen, Germany)

(3) Available from Amerchol Corp. (Edison, NJ, USA)

(4) Available from Rhone-Poulenc (Cranbury, NJ, USA)

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#### After Shave/Cologne Compositions

	IXX	XX	XXI	XXII
Component	WT%	WT%	WT%	WT%
Ethanol	61.55	79.30	74.30	60.00
Isopropanol	---	---	5.00	10.00
Benzophenone	0.10	0.10	0.10	0.10
Dimethicone <sup>1</sup>	0.2	0.2	0.2	0.2
Perfume Blend A	1.0	---	---	---
Perfume Blend B	---	---	1.0	---
Perfume Blend C	---	1.0	---	---
Perfume Blend D	---	---	---	1.0
Dipropylene Glycol	0.0053	0.011	0.053	0.0265
Water	qs 100	qs 100	qs 100	qs 100

<sup>1</sup> Dow Corning 200 Fluid - 20 cs

**WHAT IS CLAIMED IS:**

1. An odor masking base composition comprising:
  - (i) from 15% to 75% by weight of an ionone perfume having a boiling point  
5 of more than 250°C,
  - (ii) from 5% to 65% by weight of a musk having a boiling point of more than 250°C, and
  - (iii) from 20% to 80% by weight of a highly volatile perfume having a boiling  
10 point of less than 250°C.
  
2. A personal care composition comprising:
  - (a) from 0.1% to 99.85% by weight of a malodor-producing material; and
  - (b) from 0.005% to 2.5% by weight of an odor masking base which  
15 comprises
    - (i) from 15% to 75% by weight of the base of an ionone perfume having  
a boiling point of more than 250°C,
    - (ii) from 5% to 65% by weight of the base of a musk having a boiling  
point of more than 250°C, and
    - (iii) from 20% to 80% by weight of the base of a highly volatile perfume  
20 having a boiling point of less than 250°C.
  
3. A method of masking the malodor of a malodor-producing material in personal  
care compositions, said method comprising the steps of:  
25
  - (a) preparing an odor masking base by combining the following components:
    - (i) from 20% to 80% by weight of the base of a highly volatile perfume,
    - (ii) from 15% to 75% by weight of the base of an ionone perfume, and
    - (iii) from 5% to 65% by weight of the base of a musk; and
  - (b) mixing the odor masking base of step (a) with a malodor-producing  
30 material;

wherein the composition comprises from 0.005% to 2.5% by weight of the odor  
masking base, and from 0.1% to 99.85% by weight of the malodor-producing  
material.
  
- 35 4. The composition of Claim 2 or 3 wherein the malodor-producing material is  
selected from the group consisting of a malodor-producing liquid carrier, a  
malodor-producing polymer, and mixtures thereof.

5. The composition of Claims 2, 3, or 4 wherein the malodor-producing liquid carrier is a volatile solvent selected from the group consisting of hydrocarbons having from about 8 to about 18 carbon atoms, di(C<sub>5</sub>-C<sub>7</sub>) alkyl ethers and diethers, C<sub>5</sub>-C<sub>12</sub> alkyl esters, C<sub>1</sub>-C<sub>4</sub> alcohols, volatile cyclic and linear polydialkylsiloxane, linear siloxy compounds, silane compounds, and mixtures thereof.
6. The composition of Claims 2, 3, or 4 wherein the malodor-producing polymer is selected from the group consisting of gums and resins derived from natural sources; crosslinked nonionic polyacrylate polymers, crosslinked cationic polyacrylate polymers, polysaccharides, crosslinked acrylic acid homopolymers, crosslinked acrylic acid copolymers, polyacrylamide polymers, alkyl vinyl ether copolymers, maleic anhydride copolymers, polyvinyl (N-pyrrolidones), polydimethylsiloxane gums, silicone elastomers, siloxane gums, resin reinforced siloxanes, crosslinked siloxane polymers, silicone copolymers, and mixtures thereof.
7. The composition of any one of the preceding claims wherein the ionone perfume is selected from the group consisting of methyl ionones, alpha ionones, beta ionones, gamma ionones, and mixtures thereof.
8. The composition of any one of the preceding claims wherein the musk is selected from the group consisting of polycyclic musks, macrocyclic musks, nitrocyclic musks, and mixtures thereof.
9. The composition of any one of the preceding claims wherein the highly volatile perfume is selected from the group consisting of aldehydes having from about 2 to about 15 carbon atoms, esters having from about 3 to about 15 carbon atoms, alcohols having from about 4 to about 12 carbon atoms, ethers having from about 4 to about 13 carbon atoms, ketones having from about 3 to about 12 carbon atoms, and mixtures thereof.
10. The composition of any one of the preceding claims wherein the composition further comprises from 0.05% to 5% by weight of a perfume oil, and has a weight ratio of perfume oil to odor masking base of from 50:50 to 95:5.



# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/09135

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A61K7/46

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 730 095 A (P.BAUDECROUX) 18 May 1955 see claims 1,2 see page 2, line 8-27 see page 2, line 77 - page 3, line 9 see examples 2,8 see page 8, line 1-10	1-10
X	GB 995 175 A (CHEMISCHE WERKE ALBERT) 16 June 1965 see claim 1 see example 1	1-3,7-10
P,X	EP 0 780 132 A (INTERNATIONAL FLAVORS & FRAGRANCES) 25 June 1997 see claims 1,2,4 see page 7, line 7-54 see page 8, line 1-10 see example 1	1-3,7-10

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

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Date of the actual completion of the international search

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/09135

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 730095	A	NONE	
GB 995175	A	BE 632886 A CH 456047 A DE 1158214 B FR 1359493 A NL 291611 A US 3234098 A	07-08-1964 08-02-1966
EP 780132	A	25-06-1997	US 5683979 A 04-11-1997